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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,398	02/11/2005	Soichi Kuwahara	075834.00506	6054
33448	7590	01/06/2009		
ROBERT J. DEPKE LEWIS T. STEADMAN ROCKEY, DEPKE & LYONS, LLC SUITE 5450 SEARS TOWER CHICAGO, IL 60606-6306			EXAMINER  LEBRON, JANNELLE M	
			ART UNIT  2861	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/524,398

**Applicant(s)**

KUWAHARA ET AL.

**Examiner**

JANNELLE M. LEBRON

**Art Unit**

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 12, 13, 16 and 20-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 12, 13, 16 and 20-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 0205 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/16/2008 has been entered.

### ***Claim Objections***

2. Claim 12 is objected to because of the following informalities: in line 4, "ink ejecting nozzle;" should be replaced by "ink ejecting nozzle.". Appropriate correction is required.
3. Claim 16 is objected to because of the following informalities: in line 4, "plurality of **oink** ejecting nozzles" should be replaced by "plurality of ink ejecting nozzles". Appropriate correction is required.
4. Claim 16 is objected to because of the following informalities: in line 20, "of the **atl east** one group" should be replaced by "of the at least one group". Appropriate correction is required.
5. Claims 26 and 27 are objected because of the following: they fail to particularly point out and distinctly claim the subject matter which applicant regards as the

invention. The specification doesn't mention a "plurality of binary deflection control inputs" or "an analog deflection amplitude control input".

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 12, 13, 16 and 20-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Eguchi et al. (US 2004/0036723).

**Eguchi et al. discloses the following claimed limitations:**

- **Claim 1:** a liquid ejection apparatus comprising:
  - a line head [10 in fig. 21] having a plurality of liquid ejection unit heads [1 in fig. 21], each unit head having a plurality of ink ejecting nozzles [1a in fig. 21; paragraphs 0008 and 0128] including two or more ink ejecting elements [heating elements 13], the ink ejecting nozzles being arranged in groups by unit heads such that each unit head includes a single group of ink ejecting nozzles [as seen in fig. 21];
  - principal control means [main controller in fig. 6] for separately controlling each group of ink ejecting nozzles based upon a default operating

condition for the respective unit head as manufactured such that substantially equal current is supplied to the ink ejecting elements [equal amounts of currents provided to the connected heating resistors; Abstract and paragraph 0096];

- auxiliary control means [sub operation controller in fig. 6] for modifying the default operating condition for at least one group of ink ejecting nozzles relative to the remaining groups of ink ejecting nozzles such that unequal currents are supplied to the ink ejecting elements of the at least one group of ink ejecting nozzles [different current provided and direction of ink ejected (and therefore different operating condition; Abstract and paragraphs 0031, 0096 and 0097; as seen in fig. 4C);
  - storing means for storing the modified operating condition as the default operating condition for said at least one group of ink ejecting nozzles [paragraphs 0161 and 0162].
- **Claim 12:** wherein the liquid ejection apparatus comprises:
    - a liquid chamber [liquid cell 12 in figs. 1-2B; paragraph 0072] for accommodating liquid to be ejected at each ink ejecting nozzle.
  - **Claim 13:** wherein the liquid ejection apparatus comprises:
    - a liquid chamber [liquid cell 12 in figs. 1-2B; paragraph 0072] for accommodating liquid to be ejected associated with each ink ejecting nozzle;

- a heating element [resistor 13] arranged within the liquid chamber for generating bubbles in the liquid contained in the liquid chamber by supplying energy [paragraph 0072];
  - wherein the ink ejecting elements are juxtaposed in each liquid chamber in an arranging direction of the liquid ejection unit heads, and
  - further comprising a circuit having a switching element [transistors] connected between the heating elements [as seen in fig. 6].
- **Claim 16:** a liquid ejection method for controlling the ejection of ink from a line head [10 in fig. 21] arranged by longitudinally juxtaposing a plurality of liquid ejection unit heads [1 in fig. 21], each unit head having a plurality of ink ejecting nozzles [1a in fig. 21; paragraphs 0008 and 0128] including two or more ink ejecting elements [heating elements 13], the ink ejecting nozzles being arranged in groups by unit heads such that each unit head includes a single group of ink ejecting nozzles [as seen in fig. 21], the liquid ejecting method comprising the steps of:
  - providing principal control means [main controller in fig. 6] for separately controlling ejection of liquid droplets from each group of ink ejecting nozzles based upon a default operating condition for the respective unit head as manufactured such that substantially equal current is supplied to the ink ejecting elements [equal amounts of currents provided to the connected heating resistors; Abstract and paragraph 0096];

- selectively enabling auxiliary control [sub operation controller in fig. 6] for modifying the default operating condition for at least one group of ink ejecting nozzles relative to the remaining groups of ink ejecting nozzles such that unequal currents are supplied to the ink ejecting elements of the at least one group of ink ejecting nozzles [different current provided and direction of ink ejected (and therefore different operating condition; Abstract and paragraphs 0031, 0096 and 0097; as seen in fig. 4C];
  - storing the modified operating condition as the default operating condition for said at least one group of ink ejecting nozzles [paragraphs 0161 and 0162].
- **Claims 20 and 21:**
  - further comprising detection means / step for detecting landing positions of ink ejected by said ink ejecting nozzles in a test pattern [as seen in fig. 22A and 22B] and using the results of the detection to determine the amount of modification to apply via the auxiliary control means [the angle of deflection is modified for each unit head as seen in fig. 4A-4C].
- **Claims 22 and 23:**
  - Wherein said at least one group of ink ejecting nozzles utilized said modified operating condition on all subsequent print operations [paragraphs 0161 and 0162].
- **Claims 24 and 25:**

- wherein said storage means is a memory element [paragraph 0162].
- **Claims 26 and 27:**
  - further comprising a plurality of binary deflection control inputs [paragraph 0257 and 0258] for determining, step by step, an amount of deflection to be applied to a group of ink ejecting nozzles, and an analog deflection amplitude control input [paragraph 0206 and claim 27] for varying the value of each step.

#### ***Response to Arguments***

8. Applicant's arguments with respect to claims 1, 12, 13 and 16 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Communication with the USPTO***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JANNELLE M. LEBRON whose telephone number is (571)272-2729. The examiner can normally be reached on Monday thru Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LUU MATTHEW/  
Supervisory Patent Examiner, Art Unit 2861

/Jannelle M. Lebron/  
Examiner, Art Unit 2861